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9 March 1981

USSR Report

ENERGY

No. 50

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ELECTRIC POWER

DEVELOPMENT OF POWER SYSTEMS, ENERGY SOURCES

Unified Power System

Moscow EKONOMICHESKAYA GAZETA in Russian No 51, Dec 80 pp 12-13

/Article: "In a Unified Complex"/

/Text/ Lenin's idea of uniting power systems was embodied in the formation of the Unified Power System of the USSR--the most important part of our national economic complex. All the Soviet republics acquired an equal right to use the benefits of electrification.

The largest electric power transmission lines, which connect electric power stations into united power systems (OES's) and the latter into the Unified Power System (YeES) of the USSR, are shown in the published map. At present such centralization makes it possible to manage resources efficiently on a territory of more than 10 million km^2 with a population of about 220 million. The distance between the extreme points of the YeES of the USSR is from West to East 7,000 km--six time zones. It is composed of nine OES's, the capacity of which in 1979 was equal to: the Center--36.3 million kW, the Central Volga--14.9 million kW, the Urals--29.8 million kW, the Northwest--24.9 million kW, the South--44.1 million kW, the Northern Caucasus--9.9 million kW, Transcaucasia--10.3 million kW, Kazakhstan--7.8 million kW, Siberia--33.4 million kW. The control of approximately 85 percent of the installed capacity of all the electric power stations of the country is carried out from a unified center.

During the 11th Five-Year Plan the OES of Central Asia (17.5 million kW) will be tied into the YeES of the USSR, and then on the basis of the electrification of the Baykal-Amur Main Rail Line the OES of the East (7.2 million kW) will be added.

There are more than 2,000 electric power stations in the system of the USSR Ministry of Power and Electrification. Of them 70 have a capacity of 1 million kW and more, including 30 of 2 million kW and more.

The Cooperation of Electric Power Stations

The need for the organization of the cooperation of electric power stations, the efficient distribution and the expeditious switching of the power generated by them was called for back in the plan of the State Commission for the Electrification of

Russia. For the immense country the question of the concentration and centralization of the generation of electric power is of primary importance. This is especially important because a large portion of our power potential is located beyond the Urals, while the main industrial centers developed historically in the European part of the country.

Within the YeES of the USSR power giants of large unit capacity are used with the greatest efficiency. A twofold increase of the unit capacity of electric power stations decreases the expenditures per unit of capacity by 20 percent. The specific consumption of conventional fuel for the generation of electric power decreases. The construction of one large electric power station as compared with the building of several small ones within a radius of 300-500 km costs 10-15 percent less even with allowance made for the erection of electric power transmission lines.

The advantages of unification are especially revealed in dry years, when hydroelectric power stations cannot ensure the maximum generation. The arising gap is offset by GRES's. Depending on the formed fuel balance it is possible to manipulate the capacities of thermal electric power stations and to shift the "center of gravity" if necessary to fuel oil-burning, coal-burning or gas-burning GRES's.

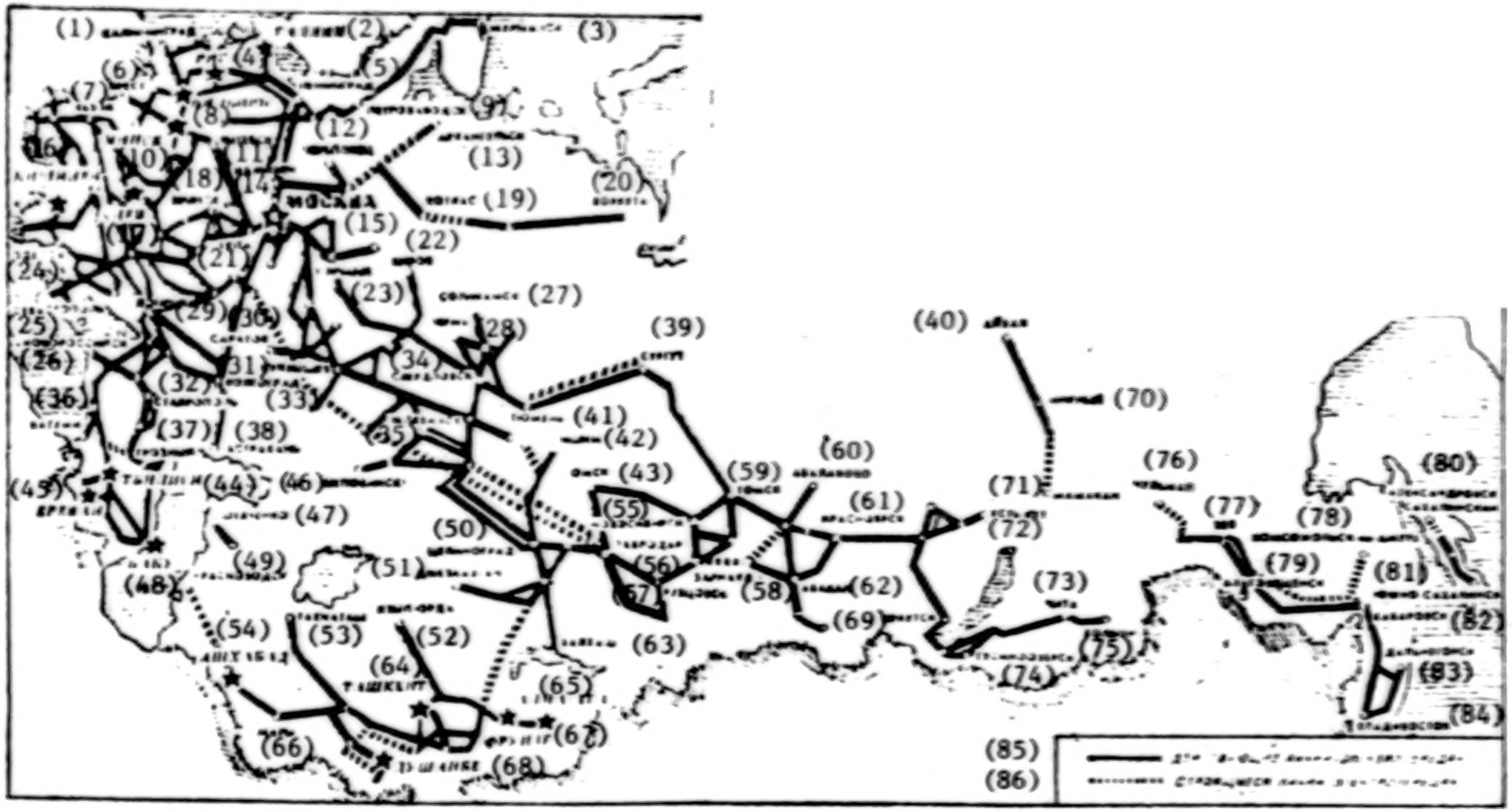
The reliability of power supply is being ensured. The need for additional standby capacities is decreasing. In 1980 the advantages of the YeES of the USSR made it possible to achieve an impact equivalent to the placement into operation of approximately 10 million kW of power capacities.

The Length of Power Supply Networks

In the past 15 years the length of 400-500 kV electric power transmission lines has increased twofold. Such lines serve primarily for intersystem connections. Power bridges of 750 kV each are in operation in the Leningrad-Moscow and the Donbass-Dnepr-Vinnitsa-Western Ukraine-Hungary directions. The construction of the extra-long Ekibastuz-Center line has begun. A direct current of 1,500 kV will be transmitted through it over 2,500 km. The construction of 1,150-kV AC electric power transmission lines for an outlet of the electric power of the electric power stations under construction of the Ekibastuz and Kansk-Achinsk fuel and power complexes to the Urals is called for.

Until recently the coal of the unique Ekibastuz deposit in Pavlodarskaya Oblast was sent to the thermal electric power stations of the Urals. The task has been set to process a considerable share of the cheap fuel locally, ensuring the transportation of electric power. Near the Ekibastuz and Maykubekskiy coal deposits, which are being mined by the economical open-cut method, five thermal electric power stations with a capacity of 4 million kW each will be built. The first two units with a capacity of 500,000 kW each at the Ekibastuzskaya GRES-1 are already in operation. A family of thermal electric power stations with a total capacity of 50-60 million kW will be located at the base of the Kansk-Achinsk deposit in Krasnodarskiy Kray, where the mining of coal is also carried out by the open-cut method.

Unified Power System of the USSR



[Key on following page]

Key:

1. Kaliningrad
2. Tallinn
3. Murmansk
4. Riga
5. Leningrad
6. Brest
7. L'vov
8. Vilnius
9. Petrozavodsk
10. Minsk
11. Vitebsk
12. Cherepovets
13. Arkhangel'sk
14. Kalinin
15. Moscow
16. Kishinev
17. Kiev
18. Bryansk
19. Kotlas
20. Vorkuta
21. Tula
22. Kirov
23. Gor'kiy
24. Odessa
25. Sevastopol'
26. Novorossiysk
27. Solikamsk
28. Perm'
29. Donetsk
30. Saratov
31. Kuybyshev
32. Stavropol'
33. Volgograd
34. Sverdlovsk
35. Chelyabinsk
36. Batumi
37. Groznyy
38. Astrakhan'
39. Surgut
40. Aykhal
41. Tyumen'
42. Ishim
43. Omsk
44. Tbilisi
45. Yerevan
46. Aktyubinsk
47. Shevchenko
48. Baku
49. Krasnovodsk
50. Tselinograd
51. Dzhezkazgan
52. Kzyl-Orda
53. Takhiatash
54. Ashkhabad
55. Novosibirsk
56. Pavlodar
57. Rubtsovsk
58. Barnaul
59. Tomsk
60. Avalakovo
61. Krasnoyarsk
62. Abakan
63. Balkhash
64. Tashkent
65. Alma-Ata
66. Mary
67. Frunze
68. Dushanbe
69. Irkutsk
70. Mirnyy
71. Mamakan
72. Ust'-Kut
73. Chita
74. Gusinoozersk
75. Kholbon
76. Chul'man
77. Zeya
78. Komsomol'sk-na-Amure
79. Blagoveshchensk
80. Aleksandrovsk-Sakhalinskiy
81. Yuzhno-Sakhalinsk
82. Khabarovsk
83. Dal'negorsk
84. Vladivostok
85. Operating electric power transmission lines
86. Electric power transmission lines under construction

Generation of Electric Power in the USSR
(billions of kWh)

1940	1965	1975	1979	1981 (plan)	1985 (plan)
49	507	1039	1238	1335	1550-1600

At the Service of Central Heating

The cogeneration of electric power and thermal energy is one of the specific features of USSR electric power engineering. Heat and electric power stations take up more than a third in the installed capacities of the thermal electric power stations of the country. Such centralization of heat supply yields a significant saving of fuel and promotes environmental protection. With respect to the scale of central heating the USSR has no equals in the world. The efficiency of centralized heat supply will increase even more with the placement into operation of nuclear heat and electric power stations and heat supply stations.

In the past 15 years the electric power-worker ratio in agriculture has increased sevenfold. At the same time the length of electrified railway lines has increased 1.7-fold, the length of electrified subways has increased more than twofold.

Electric power transmission lines have also extended to the most hard to reach regions of our country--the tundra settlements of the Far North and the alpine villages of the Pamirs. Like blood vessels, they thread the entire national economic complex. The leading pace of electrification makes it possible to systematically develop industry and agriculture, to electrify rail transport and to improve the working and living conditions of the Soviet people.

Electric Power Sources

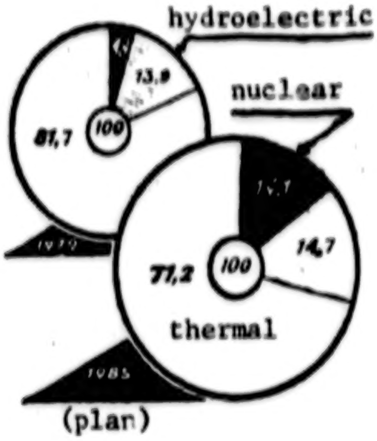
Moscow EKONOMICHESKAYA GAZETA in Russian No 51, Dec 80 p 13

/Article: "The Prospects of Development"/

/Text/ During the 11th Five-Year Plan the draft of the CPSU Central Committee for the 26th party congress calls for an increase of the generation of electric power to 1.55-1.6 trillion kWh (more than 180-fold more than the plan of the State Commission for the Electrification of Russia) as against approximately 1.3 trillion kWh in 1980. In the European part of the country the increase of the generation of electric power is being provided mainly at /nuclear electric and hydroelectric power stations/ /in boldface/. Thus, the Khmel'nitskaya, Zaporozhskaya, Krymskaya, Chernobyl'skaya, Yuzhno-Ukrainskaya and Rovenskaya AES's and the Odesskaya ATETs /nuclear heat and electric power station/ will be put into operation in the Ukraine.

The change in the proportion of thermal, hydroelectric and nuclear electric power stations in the generation of electric power is shown in the published diagram.

Structure of the Generation of Electric Power
(percent)



Scientific and technical progress, the acceleration of which is being promoted by electric power engineering, in turn is actively influencing the improvement of this important sector.

Progressive Directions

The /technology of processing solid fuel/ /in boldface/ by the high temperature pyrolysis method has been developed in the USSR. The products obtained here can be used in part for power needs and in part as a chemical raw material. A pilot industrial plant for the power engineering utilization of shales has already been put into operation at the Estonskaya GRES. A similar plant with a capacity of 1 million tons of conventional fuel a year for the processing of Kansk-Achinsk coals is being erected. From 1 ton of run of mine coal it will be possible to obtain here 300-350 kg of semicoke and 130-150 kg each of liquid fuel and fuel gas. The building of a pilot industrial steam and gas plant with a capacity of 250,000 kW with /the intracyclic gasification of solid fuel/ /in boldface/ is outlined in the draft of the CPSU Central Committee.

The building in combination with hydroelectric power stations of /pumped-storage electric power stations/ /in boldface/ is very promising. They store up the surplus power of GES's, which appears at night, by pumping water up from below. During the "peak" load the water passes down from above through the units. Such a station, for example, exists at the Kiev hydraulic development. Its capacity is 225,000 kW.

Fast Reactors

Nuclear electric power engineering will undergo rapid development during the 11th Five-Year Plan. Its share in the generation of electric power will exceed 14 percent as against 4.4 percent in 1979. The task of continuing the work on the development of /fast reactors/ /in boldface/ is set in the draft of the CPSU Central Committee for the 26th party congress. For a number of years such a reactor with a capacity of 350,000 kW has been in operation at the Shevchenkovskaya AES in Mangyshlakskaya Oblast. In 1980 a fast reactor with a capacity of 600,000 kW was put into operation at the Beloyarskaya AES.

Using the main isotope of uranium—U-238--as a fuel, such reactors recreate at the same time a new nuclear fuel--plutonium.

The goal of developing new designs of power blocks with fast reactors with a capacity of 800,000-1,600,000 kW is being set during the 11th Five-Year Plan.

Soviet scientists have made important gains in the area of /controlled thermonuclear fusion/ /in boldface/. A yield of neutrons, which exceeds by 100-fold the level achieved in previous Tokamaks, has been registered in the Tokamak-10. Here it is possible to obtain plasma with a temperature only one-fifth to one-fourth as high as the temperature necessary for a self-sustaining reaction.

The /magnetohydrodynamic method/ /in boldface/ of generating electric power is opening new horizons. Scientific research, planning and design work is also being actively conducted in this direction. In the channel of an MHD generator it is possible to obtain electric power directly during the combustion of mineral fuel. The construction of such a plant with a capacity of 500,000 kW has begun.

Renewable Energy Sources

The draft of the CPSU Central Committee for the 26th party congress calls for an increase of the scale of use in the national economy along with water power also of /solar energy, wind power and geothermal energy/ /in boldface/. Scientists and designers are seeking the most efficient methods of using the energy of the sun: from the heating of a heat carrier by means of a system of parabolic mirrors to the connecting of photoelectric cells. In the Crimea it is planned to construct a converter of solar energy into electric power with a capacity of 5,000 kW. The designing of a pilot industrial electric power station with a capacity of 200,000 kW has begun.

Standard windmills with a capacity of 1 to 12 kW have been designed and are being manufactured. Estimates show that windmills with a unit capacity of 100 to 300 KW can be operated efficiently in the northern regions of the country and the littoral zone of the Arctic Ocean, which have the most abundant wind power resources.

The Pauzhetskaya Geothermal Electric Power Station, which uses subterranean heat, is operating on Kamchatka. The Kislogubskaya Electric Power Station, which converts the energy of the ocean tides, is in operation in Murmanskaya Oblast. Their experience attests to the promise of such untraditional sources of electric power.

Experimental work on determining /new means of transmitting electric power over distances/ /in boldface/ is being conducted.

The tasks of the complete electrification of the entire country dictate the need to seek new highly efficient means of generating and transmitting electric power.

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ELECTRIC POWER

BELORUSSIAN POWER SUPPLY GOALS

Minsk SOVETSKAYA BELORUSSIYA in Russian 4 Dec 80 p 2

[Article by G. Khartanovich, chief of Belglavenergo: "Mighty Acceleration"]

> [Text] The goal of increasing the reliability of the supply of electric power to the national economy and of gradually decreasing the specific consumption of fuel for the generation of all types of power is set for power workers in the draft of the CPSU Central Committee for the 26th party congress, "The Main Directions of USSR Economic and Social Development for 1981-1981 and the Period to 1990."
>
> In what ways, by what means and methods is what has been outlined being achieved? G. N. Khartanovich, chief of Belglavenergo, shares his thoughts about this.

With respect to the generation of electric power Belorussia reached the level planned for the end of the five-year plan ahead of time, last year. In all 32.5 billion kWh were generated, which is considerably more than was generated during all the years of the Seventh Five-Year Plan. By consistently implementing an entire set of measures--technical, organizational and educational—we were able to reduce the cost of each kWh by 0.05 kopeck. This is equivalent to a saving in four years of the five-year plan of 40 million rubles.

We put in first place, of course, concern about the steady retooling of power engineering on a modern technical basis. For example, nearly half of the power is now generated on equipment with a large unit capacity with supercritical steam conditions. To this it is possible to add the development of central heating, the introduction of automated control systems and means of automation of production processes.

We are devoting particular attention to increasing the efficiency of the use of fuel. The systematic, year-to-year decrease of its specific consumption for the generation of electric power and thermal energy placed the Belorussian System with respect to these indicators in the group of leaders in the country. We are convinced of how important this is if only by the following example. Last year alone the republic would have needed an additional 950,000 tons of conventional fuel, if it were to work with the average union indicators. During the current five-year plan 1.4 million tons of it will be saved by reducing the specific rates of consumption of fuel. Continuing the comparison, it can be said that this is sufficient for the operation for one month of all the electric power stations and boiler houses of the republic.

The achievements, of course, are significant. In appraising them from the standpoint of the great demands of the October (1980) CPSU Central Committee Plenum, it must be said frankly that the reserves for increasing the efficiency of fuel use in the power system are still considerable. For example, work on the search for and utilization of new potentials, as well as on the elimination of shortcomings and oversights, which lead to the excessive consumption of fuel, is being actively performed at far from all enterprises. Take if only the Zhodinskaya and Svetlogorskaya TETs's. The gap between their actual and standard indicators of the degree of economy is intolerably great. Moreover, they need effective assistance on the part of the Minskenergo and Gomel'energo administrations, the Belenergoremnaladka enterprise and the services of Belglavenergo. Much also has to be done at our leading enterprises, such as the Lukoml'skaya and Berezovskaya GRES's and the Minskaya TETs No 2. The reserves here also are still far from being exhausted.

The growing republic economy requires daily concern about the continuous supply of power to all sectors of the national economy and the population. Timely repairs of the equipment at electric power stations and boiler houses, as well as the maintenance in working order of the heating and electric power systems play a primary role in this. We annually spend about 52 million rubles on repair service. This is a considerable figure. However, it still does not meet the needs of today, especially for the repair of the heating and electric power systems. We are experiencing difficulties in the supply of special equipment, material and manpower resources and pole wood. We have a great need for the assistance of the Belorussian SSR State Planning Committee in solving these questions.

The electric power systems and their conformity to the demands, which consumers are making today, play a most important role in setting up steady supply. An efficiently organized system, which is equipped with the necessary means of protection and automation, makes it possible to eliminate in good time the malfunctions occurring in it and to reduce to a minimum the time that consumers are cut off. In the Belorussian Power System this work is performed according to plan, we are using the latest engineering solutions: we are introducing microcomputers, the complete automation of the distributing systems has commenced.

We are faced with the task of ensuring this year a specific consumption of conventional fuel of 301 g per released kWh. This is 16 g less than the average sectorial level. We should achieve the entire increase of the amounts of generation by increasing labor productivity. It must be said that a reliable basis has been created here for the successful fulfillment of the assignments and socialist obligations.

It is well known that people implement any plan. Only well-organized labor, the precise cooperation of all subdivisions and the great responsibility of personnel for the assigned matter can yield the necessary result. The specific nature of our production is such that it does not make it possible to carry over mechanically from other sectors the techniques and methods of labor. However, the creative use of the main principles of, for example, the brigade contract, the methods of the Dinamo Plant, the Shchekino experiment and a number of others yields very appreciable results. For example, the Belorussian Power System was one of the first in the sector to introduce the comprehensive system of evaluating the quality of labor of personnel. We evaluate and stimulate the labor of a worker depending on what contribution he has made to the common cause.

We consider socialist competition an important means of improving economic activity, a mighty lever of the education of people. Thus, the collective of the Lukoml'skaya GRES imeni 50-letiya SSSR came forth with an initiative aimed at saving fuel and energy resources. All the workers of the system supported it. A movement for the awarding of the title "Enterprise of a High Quality, Efficiency and Standards of Production" was launched. According to the results of the work for last year the Lukoml'skaya GRES imeni 50-letiya SSSR and the Glubokoye Enterprise of Electric Power Systems were awarded this honorary title.

In increasing the generation of electric power and thermal energy, we all should be concerned about its intelligent, efficient use. It must be said that the opportunities to save by means of organizational measures are limited and in practice have already been exhausted. Therefore, obsolete equipment must be replaced more rapidly, power-saving technologies must be used more extensively, the heat retention of industrial structures and apartment houses must be increased.

Much in this matter depends on scientifically sound rate setting. The republic ministries and departments and sectorial institutes should see to the provision of enterprises with technical sound rates of consumption of power per unit of output, which prompt the introduction of new equipment and economical technological processes of production.

In order to achieve the gains outlined by the draft of the CPSU Central Committee for the 26th party congress, we have to do much work on organizing correct recording in the consumption of energy resources. The Belorussian branch of the Institute imeni G. M. Krzhizhanovskiy has developed and is introducing in industry the IISE-1-48 information measuring system. It ensures the accurate recording of the consumption of electric power and capacity at any time of the day and over any interval of time. Therefore, the use of this innovation at enterprises of the republic should be expedited.

Many labor collectives of the republic have gained abundant experience of a careful attitude toward the use of energy resources. Among them are the Minsk bearing, pinion, tractor and a number of other plants. Now it is a matter of the achievements of these collectives becoming accessible to many collectives.

The draft of the Main Directions opens broad horizons before us. In light of this document the future of our republic is seen in the construction of nuclear power supply sources. The technical and economic substantiation of the construction of the Minsk Nuclear Heat and Electric Power Station has already been examined and agreed on in the appropriate organs. By 1990 nearly half of the consumers of the Belorussian capital will use heat from it. Operating electric power stations will undergo further development.

As before, much attention has been devoted to increasing the reliability of power supply to consumers, especially rural consumers. This will be achieved by increasing the number of 110-kV and 35-kV substations for agricultural consumers and by introducing automation equipment in the distributing systems.

Our workers, as we see, have large assignments. The collective of Belorussian power workers is fully resolved to achieve successfully the new, higher goals. The socialist competition launched in honor of the 26th CPSU Congress serves as a good basis for this.

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CSO: 1822

BETTER CALCULATION OF GAS CONSUMPTION AND PARAMETERS NEEDED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Dec 80 p 2

[Article by Ye. Chulayevskiy, deputy chief power engineer of the production association "Novokramatorsk Machine Construction Plant": "What is Behind the Cubic Meter?"]

[Text] I have been working for over 20 years in the gas service of a large machine construction plant. Now when the entire country is discussing the draft of "Main Directions of the USSR Economic and Social Development for 1981-1985 and for the Period to 1990," I would like to share my considerations on one of the most urgent problems that we have to solve. I am speaking of the economical use of fuel and energy resources, in particular, natural gas.

The plant collective has done a lot in these 20 years for more efficient use of the valuable fuel. But every time that I evaluate the result at the end of the next phase of work, I feel a great dissatisfaction. It is not known what is the real effect of our work that is directed towards gas conservation. The result is always approximate, and at times even conditional. The reason is that there are serious shortcomings in the calculation of gas consumption.

I foresee perplexity. How, they say, can the calculation be insufficient when the gas-supplying organizations scrupulously and zealously record each cubic meter of released fuel, and when meters have been installed everywhere?! But fuel is not water, and in addition to cubic meters, its thermal engineering properties do not play the last role. They are subject to frequent and significant changes. It is not without purpose, for example, that the sender is obliged to supply each batch of furnace mazut with a certificate that clearly indicates the combustion heat and other physical and technical characteristics. This is done so that the consumer can set up the optimal combustion regime.

Neither the gas supplying organizations nor the majority of consumers have such information about gas of sufficient accuracy and reliability. What is the result of this one-sided quantitative calcuation? I will demonstrate in the example of our association "Novokramatorsk Machine Construction Plant." We receive from the ministry an assignment to guarantee a saving of 4,000-5,000 tons of comparison fuel per year. The organizational and technical measures for this purpose cost half a million rubles. But it is sufficient to reduce the heat value of gas on the average of 2-3% for the year in order to "neutralize" all the efforts and expenditures of the collective.

However, depending on the birthplace of the gas, the deviation of its characteristics is much greater: from 16% below the normal to 23% above it. In the first case the plant loses. It is over 30,000 tons of comparison fuel short. This would be enough to melt 90,000 tons of steel in our open-hearth furnaces, or heat 80,000 tons of forged pieces in the forge and pressing shops (I do not cite these numbers to justify any of our shortcomings. In this year alone, our introductions will conserve about 6,000 tons of comparison fuel, but with the proper accounting it could be even more). In the second case, the national economy is the noticeable loser because of the overconsumption of gas at our and other enterprises.

In speaking at the October (1980) Plenum of the CPSU Central Committee, Comrade L. I. Brezhnev stated that our plans must include a great saving of fuel and energy.

I think that one of the important aspects of this program must be a number of successive measures to organize strict accounting of the qualitative characteristics of gas. As a start, it would be expedient for the Ministry of the Gas Industry to have a serious attitude towards computing the qualitative parameters of its product, and in the planned order equip its distributing stations with instruments to control the combustion heat of gas and provide daily information about it to the consumers.

I therefore suggest that the following be added to the section "Development of Industry" in the Main Directions: "Instrument making will organize the production of instruments to monitor the thermal engineering characteristics of natural gas."

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ENERGY CONSERVATION

READER RESPONSE INDICATES LEVEL OF WINTER PREPAREDNESS

Minsk SOVETSKAYA BELORUSSIYA in Russian 13 Dec 80 p 2

[Article by A. Myznikov: "Winter Has Come to the City"]

[Text] The article of deputy minister of the Belorussian SSR Ministry of Residential and Communal Services, M. F. Lunin that was published on 27 September in SOVETSKAYA BELORUSSIYA and was entitled "The City Prepares for Winter," elicited a broad response from the public and focused the attention of the gorispolkoms and communal services on eliminating the serious omissions noted in the article in preparing the republic's residential fund for operation under winter conditions. The editorial staff received dozens of letters from leaders of enterprises and departments concerning the solution to this most important social-general question. In these letters they report of additional measures taken to complete the repair of housing, improve heat supply, and use equipment for snow-removal and covering the streets with sand and salt mixtures. During a check of the local situation, means of perfecting the work of the communal services were defined, and strict order was set up for an efficient use of fuel resources.

The deputy chairman of the Minsk oblispolkom, V. I. Golubev, informs the editorial staff that problems of preparing the city for operating under 1980-1981 winter conditions were discussed at the meeting of all leaders of the oblast services and organizations. The municipal services of the oblast were prepared for operation in the winter period according to the measures approved by the raygorispolkoms. These measures have mainly been fulfilled. Work has been completed to repair the residences, boiler houses, heating assemblies, heat pipes and thoroughfares. The available snow-cleaning and removal equipment has been prepared. The necessary standard reserves of mazut, furnace fuel and firewood have been created. All the heating boiler houses have been started up.

However, definite difficulties arose in realizing the funds for solid fuel, coal. The Voroshilovgraduglesnabsbyt [Voroshilovgrad Administration of Coal Supply and Marketing] undersupplied the Myadel' association of boiler and heating networks 1,080 tons of coal in 3 quarters of this year, while in the fourth quarter, of a fund of 585 tons, only 130 were received.

In Borisov, the problem of creating a single service for operation of the boiler and heating circuits has become extreme. Taking into consideration that the city has large industrial boiler houses and a significant length of heating networks, the oblispolkom believes that the indicated unified thermal engineering service should be set up in the system "Belgavenergo." The Minsk obkom of the Belorussion Communist Party has currently entrusted the "Minskenergo" and Borisov gorispolkom to work out this question and to make specific suggestions.

"The article 'The City Prepares for Winter' was discussed in all the collectives of the city's residential and communal services," reports the chairman of the Gomel' gorispolkom, A. A. Bashilov. "In fulfilling the decisions of the Belorussian Communist Party Central Committee and the republic council of ministers, the city has done a lot of work to prepare the facilities to operate under winter conditions.

At the started heating season, all the boiler and heating networks were put into operation in time. Specially created commissions in the rayispolkoms verify the readiness of each residence for winter and the detected shortcomings are eliminated.

Constant control has been set up over the facilities of major repair of the housing fund. The gorispolkom and the ispolkoms of the rayon soviets of people's deputies, and the repair-construction administration of the trust "Stroybytremont" help to search for lacking construction materials.

In order to guarantee continuous operation of the municipal transportation, the pavement of all main streets has been repaired. The snow-removal equipment is fully prepared and commercial salt and sand have been purchased for sprinkling the streets.

Taking into consideration the insufficient technical degree of equipping of the special service stations for sanitary cleaning of the city, the ispolkom of the city soviet of people's deputies entrusted the industrial enterprises and organizations with cleaning individual sections of territory and roads.

The association of the water and sewage service have finished repairing all the artesian wells, water and sewage wells that improve the pumping stations and hydrants.

The preparation of residential and communal services facilities in the city for operation in the winter period is under the constant control of the gorispolkom."

The editorial staff received a detailed response from the deputy chairman of the Mogilev oblispolkom, V. B. Yelinevskiy. In the residential-operational organizations of the oblast a lot has been done for the timely preparation for winter. Repairs have been made on 92,500 square meters of roofs, 2,494 furnaces and kitchen hearths, 5,870 meters of drainage devices, and 18,900 square meters of general purpose rooms have been glass-enclosed. All the boilers have been fixed and have been engaged since the beginning of the heating season. Currently the TETs-2 in Bobruysk is being reconstructed with the installation of an additional PTVM-100 boiler. This will permit unloading of the boiler houses of the cost accounting association. In the cities of Kostyukovichi and Gorki the boiler houses have been switched from solid to liquid fuel. This will increase their output by 20-25%.

The oblast is taking the necessary measures to improve major repair of the residences and to observe the repair schedules. In house No 36 on Ulitsa Stroiteley in Mogilev finishing work is underway. House No 40 on Ulitsa Pervomayskaya will be put into operation in November of this year. The finishing work in it is currently being completed. House No 39/40 on Ulitsa Pervomayskaya is occupied.

The editorial staff received letters from Vitebsk from the deputy chairman of the oblispolkom, Ye. G. Gavrilenko. The article "The City Prepares for Winter" spoke of the unsatisfactory heat supply to housing from the rayon boiler house in Polotsk. With the rated output of this boiler house at 24.5 gigacalories per hour, the connected load here is 28 gigacalories per hour. An analogous situation occurred in the Vitebsk boiler houses at 21 Ulitsa Zhestkova, 13 Ulitsa Mira and 36 Ulitsa Frunze. It seemed that these alarming signals should have elicited the most energetic measures on the part of the oblispolkom, however, judging from the letter of Ye.G. Gavrilenko there were no further discussions of the noted deficiencies.

Not all rayons were ready to meet winter, nor the capital of the republic. According to the signals and letters from readers coming to the editorial staff, the stairwells have not yet been glassed in, the dormer windows in the basements and garrets have not been covered, the drain pipes are broken, etc. in houses Nos 17 and 23 on Izvestina Prospekt, No 24 on Ulitsa Landera, and No 7 on Ulitsa Metallistov.

The residential-operational organizations of Minsk need to attentively inspect each house, entrance, garret and basement once more in the near future in order to eliminate the omissions as rapidly as possible.

With the onset of the heating season a lot of complaints are received from the people of Minsk because of deviations in the heat parameters of the apartment heating. This is due to the technical unsoundness of the production enterprises of "Minteploset'" (director V. M. Golubev). For this reason alone, the heating systems of residences Nos 31, 33, 35, 37, 39, 42, 80 and other buildings on Leningradskiy Prospekt, Nos 23 and 25 on Ulitsa Pulikhova, and in a number of houses in the quarter of lanes Kozlova-Ural'skiy-Ulitsa Kozlova are not operating satisfactorily. Due to the untimely completion of work on the heat networks and elimination of disruptions, supply of heat was delayed to the houses on Ulitsa Volodarskiy, Lenin and Gor'kiy.

The people are perplexed, nervous and filled with bitterness about the experienced inconveniences. They usually turn to the residential-operational services. However the latter does not always know the reasons for accidents and malfunctions in the heat supply, nor the schedules for eliminating them.

It appears that "Belglavenergo" needs to radically reexamine the work of its subordinate production enterprises of "Minteploseti" so that the workers of this organization would inform the residents of the houses and the residential-communal service in a mandatory order about each malfunction in the heat supply system and the schedule for its elimination. This disciplines the workers and will remove the load from the communications lines from continuous calls with the same question: when will heat be supplied or when will there be hot water in the faucets?

The discussion of the article "The City Prepares for Winter" in the gorispolkoms, and the numerous responses to it by the newspaper readers convincingly indicate that today the cities of the republic on the whole are much better prepared for winter than in previous years. There nevertheless still remains a lot undone.

It is comforting that a broad circle of active public figures has participated in the preparation of the cities for winter frost. This is quite understandable for the problem concerns everyone, and therefore needs to be solved by common efforts.
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TWO BELORUSSIAN MINISTRIES CITED FOR ENERGY CONSERVATION VIOLATIONS

Minsk SOVETSKAYA BELORUSSIYA in Russian 13 Dec 80 p 1

[Article: "In the Belorussian SSR Council of Ministers: The Course of Fulfillment by the BSSR Ministry of Construction Materials Industry and the BSSR Ministry of Residential-Communal Services of Assignments to Conserve Fuel and Energy Resources"]

[Text] The decree adopted by the BSSR Council of Ministers notes that the BSSR Ministry of Construction Materials Industry and the BSSR Ministry of Residential-Communal Services are doing definite work to improve the use of fuel, heat and electricity, to introduce progressive consumption standards of them at their subordinate enterprises and organizations, and to curtail the losses of fuel and energy resources. During the 10 months of this year the enterprises of the BSSR Ministry of Construction Materials Industry and the BSSR Ministry of Residential-Communal Services conserved rather than consumed respectively 13,700 and 2,200 tons of boiler-furnace fuel, 37,900 and 9,600 gigacalories of heat, and 24.8 and 39.8 million kilowatt-hours of electricity according to the approved standards.

At the same time, the level of work done by both ministries to increase the efficient use of fuel and energy resources still does not meet the requirements of the November (1979) and October (1980) Plenums of the CPSU Central Committee, and the decrees of the Belorussian Communist Party Central Committee and BSSR Council of Ministers on these questions.

The BSSR Ministry of Construction Materials Industry has not fulfilled the set assignment for additional saving of fuel, heat and electricity. A number of enterprises of this branch have permitted overconsumption of energy resources. The Polotsk kombinat of construction materials overconsumed 1008 tons of fuel, 1.474 million kilowatt-hours of electricity and 300 gigacalories of heat this year. The Klimovichi kombinat of construction materials and the Petrikov claydite plant overconsumed 628 and 528 tons of fuel respectively above the set standard. Individual quarters have permitted overconsumption of energy resources by the glass plant "Neman," the Minsk plant of construction materials, the production association "Krichevtsementnoshifer" and a number of other enterprises. There are significant shortcomings in the organization of work to standardize the energy resources. In a number of cases, the fuel and energy consumption standards set for the enterprises do not encourage the collectives of these enterprises to conserve fuel and energy resources. Not all the enterprises have set up suitable work by the commissions to promote efficient consumption of fuel, heat and electricity.

The decree further states that there are serious shortcomings in the work to save fuel and energy resources at the enterprises of the BSSR Ministry of Residential and Communal Services. The branch as a whole has not fulfilled the set assignment for fuel conservation. The standards of electricity and heat consumption have been exaggerated without substantiation at a number of enterprises. As a result, 15 enterprises received a saving of over 10% electricity, while the Slonim experimental plant of hotel furniture saved 18% in the first quarter versus the set standards, 23.7 inthe second quarter, and about 28% of the electricity in the third quarter. Certain enterprises of the ministry have not developed organizational-technical measures for 1980 to conserve fuel and energy resources. There are omissions in the work to prepare the residential fund and communal services facilities, especially the small boiler houses, for operation under winter conditions.

A number of enterprises of both ministries continue to lose fuel during loading, transporting, unloading and storage. The heat losses are great due to the insufficient insulation of equipment and heat networks. Secondary fuel and energy resources are still poorly utilized. Cases are permitted of wasteful attitudes to the consumption of coal, gas, oil, petroleum products and other types of fuel, as well as electricity and heat.

Having noted that the BSSR Ministries of Construction Materials Industry and Residential-Communal Services have not taken all the necessary measures to improve the use of fuel and energy resources, and to fulfill the set assignments for conservation of fuel, heat and electricity, the BSSR Council of Ministers required that they immediately eliminate the shortcomings in this matter and instill the proper order in energy resource consumption.

The decree suggests that active consumption standards of fuel, electricity and heat at the enterprises and organizations be put on a monthly schedule in accordance with the set standards and assignments for their average reduction;

control be strengthened over the observance by the subordinate enterprises of the limits (plans) for consumption of electricity and heat, as well as the set limits for consumption of power in the maximum load hours;

production processes and types of work that require the least expenditures of fuel and energy be constantly introduced into production, strict control be set up over the observance of the optimal technological regimes, and secondary fuel and energy resources be involved more extensively in production;

the activity of the commissions set up at the enterprises to promote the efficient use of fuel and energy resources be stimulated, and workers, employees, Komsomol and trade union members be more actively involved in this work.

It is necessary for the BSSR Ministry of Residential-Communal Services, the Belglavenergo, the oblispolkoms and the Minsk gorispolkom to intensify control over the observance of nighttime illumination of city squares and streets, public buildings and structures, and to decisively suppress wastefulness in the consumption of electricity for these purposes.

The ministries, state committees and departments of the Belorussian SSR, oblispolkoms and Minsk gorispolkom should increase the responsibility of the leaders of enterprises of industry and transportation, construction organizations and kolkhozes and sovkhozes, and communal-general institutions for organizing unconditional fulfillment of the decress of the Belorussian Communist Party Central Committee and the BSSR Council of Ministers to guarantee economical consumption of fuel and energy resources, and increase the reliable energy supply to the national economy in the 1980-81 winter period.

The BSSR Gosplan and Gossnab with the participation of interested organizations, are obliged to define measures in a 3 month period to improve the supply to the republic consumers of the necessary instruments for metering, monitoring and regulating the consumption of fuel and energy resources.

It has been suggested that the BSSR State Committee on Television and Radio Broadcasting, and the editorial staffs of the republic and oblast newspapers extensively cover the work of collectives in the industrial enterprises, construction sites, kolkhozes and sovkhozes, institutions and organizations to conserve fuel, heat and electricity.

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ATTEMPTS MADE TO THWART WASTE OF ENERGY AT INDUSTRIAL ENTERPRISES

Need for Stimuli and Standards Exhorted

Moscow PRAVDA in Russian 15 Dec 80 p 3

[Article by Yu. Gavrilov, director of plant of medical equipment, Volgograd: "Stimuli and Standards"]

[Text] The draft of the CPSU Central Committee for the 26th Party Congress focuses the labor collectives on an all possible conservation of fuel and energy resources. The adopted line is correct. We need to unfailingly implement it.

Which one of us has not observed the following: in broad daylight, lights are on in the shop, and the turner, without stopping the lathe, goes off somewhere. If there was a universal tightening of control over the consumption of electricity, then the national economy would save an enormous quantity of energy.

There already is a whole system of measures to promote the efficient use of each kilowatt-hour. A limit on electricity consumption has been introduced. In case of overconsumption, there are fines and simultaneous liquidation of the debt, or the energy supply is stopped.

However, if one scrutinizes the developed system, one can note that it is based on a system of fines, which, as is known, are not paid from the pockets of the direct offenders. What can be done?

Economic levers must operate. The wastefulness should be cut short by deductions from the incentive funds.

On nationwide scales, a lot can be done to perfect the standards of electricity consumption per unit of product. They are still far from scientifically substantiated. Organizational and planning measures should be supplemented with technical measures. In the shops, say, the lights should be automatically turned off depending on the level of daylight illumination. Certain energy-intensive machines should be equipped to turn off automatically when they are idling. The designers and machine builders must have their say here.

The consumption of electricity at the average-sized enterprises like our plant depends to an ever greater measure on the reliability of the material and technical supply. It is no secret that interruptions in the supplies of raw materials and metal are more frequently the cause of Saturday rush work and overtime work. In the final analysis, this results in overconsumption of electricity.

Energy Inspectors Lack Sufficient Authority

Moscow PRAVDA in Russian 15 Dec 80 p 3

[Article by S. Moiseyenko, inspector of the state energy inspection, Aktyubinsk: "Allow Us to Punish You"]

[Text] The inspector of the state energy inspection monitors how specific energy consumption standards are observed, whether measures towards energy conservation are fulfilled, and also follows the condition of the electrical equipment.

It is easier to control explicit forms of wastefulness where, for example, the temperature of the outer walls of an electric furnace is higher than the standard, or they are loaded to less than half capacity, than those forms that are masked under production need. This primarily refers to the use by the enterprise of the electricity limits. As a rule, the quarterly limit is entirely consumed in the first 2 months under the pretext of production difficulties, but it is chiefly because there is complete confidence that this will not place the ministry in a predicament.

The Aktyubinsk plant of ferro-alloys, for example, in the quarter overconsumed 1.1 million kilowatt-hours, but the USSR Ministry of Ferrous Metallurgy gave it an additional limit of 2 million. As a result the metallurgists even showed a saving. A similar situation occurred at the S. M. Kirov Aktyubinsk Chemical Plant.

The root of the evil lies in the fact that the limit is set for the enterprises according to demand, and not according to the consumption standards for a unit of manufactured product. We, the inspectors of the state inspection, for our part cannot do anything since the provisions of the fines pertain only to exceeding the limit. If necessary, we document the wastefulness and pass this on to the administrative commission of the rayon soviet of people's deputies to punish the guilty. We turn off the energy only in the most extreme case.

Often the administrative commissions are limited to a gentle suggestion or a routine warning, instead of proper punishment for the offender. The very system of passing an act of the state energy inspection through the administrative commissions is cumbersome and bureaucratic. If the head of the enterprise did not sign the act, then the commission does not accept it. The result is, "Allow us to punish you...." The inspector is required to clarify the year and place of the offender's birth, his home address, party affiliation, family situation, and so forth. All of this takes time.

In October of this year, by an order of the USSR minister of power and electrification, our enterprises for marketing of energy and monitoring its use were renamed enterprises of the state energy inspection and marketing of energy. Inspection was assigned first place, thus stressing the importance of energy conservation. This increases our responsibility to the state. But it is also necessary to raise the authority of the inspector and give him corresponding powers. It seems to me in particular that it would be wise to return to the former method and give the inspector the power to fine the wasters himself.

Inspection Yields Prompt Results

Moscow PRAVDA in Russian 15 Dec 80 p 3

[Article by L. Suslov, member of municipal committee of people's control, Voronezh: "Patrols on the Alert"]

[Text] In the fifth shop of the production-technical association "Elektronika" an open party meeting was in session. Commitments were adopted in honor of the 26th CPSU Congress. The decision was unanimous that on the day the congress opened they would work with conserved materials and energy resources.

The struggle to conserve electricity at the Voronezh enterprises is persistent and systematic. The people's inspectors are playing a significant role. Since the beginning of the year they have made about 530 checks. This has been greatly responsible for the saving of over 40 million kilowatt-hours of electricity in Voronezh.

The group of people's inspectors of the central design office from the production-technical organization "Elektronika" established that heating equipment is only used 50-60 percent of the time. Technical processes are disrupted, equipment and lights are not turned off on time. The adopted measures yielded an immediate effect. About 4 million kilowatt-hours were saved in the association.

Energy Inspection Work Defended

Moscow PRAVDA in Russian 15 Dec 80 p 3

[Article by Yu. Kopytov, chief engineer of the state energy inspection of the USSR Ministry of Power and Electrification: "Opinion of the Specialist"]

[Text] The problem of saving energy is not a market problem. Its importance as one of the urgent problems of state significance was fixed in the draft of the CPSU Central Committee for the 26th Party Congress: "To guarantee during the five-year plan a saving of fuel and energy resources in the national economy in the amount of 160-170 million tons of comparison fuel...."

A lot of work is being done at the country's industrial enterprises in this direction. As a result, 58 billion kilowatt-hours of electricity and 126.6 million gigacalories of heat were conserved during the 10th Five-Year Plan. However, examinations of the enterprises by the inspectors of the energy inspection (no less than 60,000 of them are made a year) reveal serious shortcomings. Lights are on in the daytime, hot electric furnaces stand idle, hot water pipe insulation has deteriorated. As a result of such carelessness, the country loses over 3 billion kilowatt-hours of electricity and 7.5 million gigacalories of heat a year. This is equivalent to the aimless consumption of 2.5 million tons of comparison fuel. During the year, 1,880 enterprises overconsumed heat and electricity totaling 850,000 tons in conversion to comparison fuel. About 2,000 plants and factories had clearly exaggerated specific standards of energy consumption.

The agencies of the state energy inspection have taken over 30,000 measures that have helped to save roughly 1.5 million kilowatt-hours of electricity and 7 million gigacalories of heat. Monetary sanctions have been taken against the collectives who violate the energy consumption discipline for a total of over R 100 million.

It goes without saying that mass surprise inspections are needed to find excesses in energy consumption. The posts of the "Komsomol Searchlight" must act more boldly. The innovators, inventors and efficiency experts of each enterprise and construction site can provide a great benefit.

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ENERGY CONSERVATION

ECONOMIC AND ADMINISTRATIVE MECHANISMS RECOMMENDED TO INCREASE ENERGY CONSERVATION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 23 Dec 80 p 3

[Article by O. Latsis, candidate of economic sciences: "Landmarks of Economy"]

[Text] What airline passenger does not remember the tiresome minutes before take-off! Everyone is seated, seatbelts are fastened, they look at their watches, already estimating when they will arrive at their destination, but the airplane howls with all its engines and does not budge. The take-off strip is occupied and it is necessary to wait. So the passenger gathers patience and is bored for several more minutes, that is all, right?

Not quite. Here is what the specialists of civil aviation have computed: if the waiting time for take-off is reduced by 1 minute on each trip only for the IL-26, TU-134 and TU-154 airplanes, this would provide the country with an annual saving of 30,000 T of fuel. There is also the landing waiting time which could also be reduced, and taxiing time to the parking lot by means of the engine thrust although the airplane could be towed.

The civil aviation specialists have made similar calculations for more than pure curiosity. The findings were included in a directive for fuel conservation that was approved by the ministry. It was sent to the aviation enterprises to be adopted as a guide to action. Now the draft for the "Main Directions of USSR Economic and Social Development for 1981-1985 and for the Period to 1990" states: "To implement measures for a considerable decrease in the specific consumption of fuel by efficient operation of aviation equipment..."

The saving of 1 minute for one operation in one of the sectors of our economy means 30,000 tons of conserved fuel. A ton of crude oil now costs $200 on the world market. Airplane engines do not burn crude oil, but petroleum products, and they are about two times more expensive. It turns out that what one can save in this minute when sold for world prices will give the country a multimillion currency profit.

It is the law of modern economics that its enormous scales have led to an unprecedented increase in the cost of a minute, a gram, a centimeter, a minute of working time, a gram of fuel and a centimeter of material. Kopeck-worth overconsumptions at one work place, multiplied by all the machines, mills, and units operating in the national economy grow into multimillion losses, while a kopeck-worth of saving grows into multimillion savings.

It also needs to be considered that not only the blast furnace, airplane and diesel boat have become today's major consumers of energy, but also the community cafeteria and the ordinary city apartment. In other words, from the viewpoint of power engineering, there is nothing trivial in the modern economy, efficiency is important in any sector.

The annual summaries of the Central Statistical Administration report the great success in reducing the specific consumption of fuel by power plants by 1%. It is in fact a great success: this indicator for the Soviet power engineers is one of the best in the world, and there are not that many reserves for further improving it. But why is there not the same intent attention to the next link in the national economic chain, the link that consumes so effectively the produced kilowatt-hour? Why are not all the sectors concerned about reducing the specific consumption of energy per unit of useful work?

The electrical engineering industry, for example, supplies millions of instruments that bear the imprint of blatant disregard for economy. Our plants produce the same kitchen hot plate for the most part without heat regulators, although it is present in almost every iron, and without a timer, which is found in every washing machine. This plate overconsumes so much energy, not to mention the family losses like boiled-over soup and burnt pie?! It has been computed that if the apartment electric hot plates were turned on once at full power in Moscow, they would require the power of two Volga GESs, the Kuybishev and Saratov.

Why can one department so easily fritter away the achievements of another department in conservation of energy resources? This is apparently because it is only concerned with "its own" conservation. To make the electricity-consuming instrument more advanced means to bear additional expenditures. Assume that they are much lower than the saving that could result. I will have the expenditures, they will reflect on my planning indicators, while my neighbor will obtain the result.

This simple reasoning could be easily debunked from the viewpoint of morals, but this will not advance the solution to the economic problem. On the contrary, it will obscure the fact that the economic problem remains unresolved. For a practical, economical solution, moral evaluations alone are insufficient. Economic and administrative levers are needed. The electrical engineering plant, like every other plant, has a plan which sets the measures for conservation of labor, materials and energy in the production process. The saving obtained by the consumer is already in the plans of another enterprise. The supplier of the wasteful instrument is not responsible for it. This is why the draft of the Main Directions notes that the achievements in developing the economy and solving social problems could be more weighty if there were more complete utilization of the advantages of a planned economy, more active involvement of production reserves in the turnover, and more persistent struggle against the shortcomings.

The saving of energy resources not only by the related industry, but at times by the actual enterprise does not influence the work indicators. The collective is asked to first of all manufacture a product, while the consumable energy, be it electricity or heat, gas or coal, is an almost gratuitous condition of production.

It is true that some time ago fines were introduced for the overconsumption of resources, for example, gas. There is also a prize for economy. But what serves as the reference point in solving the problem of whether overconsumption was permitted or a saving was realized? It turns out that the consumption limit "descends" from above. It is enough to get the higher instance to "stamp out" the limit a little more freely and there will be no fine, even if the energy consumption exceeds the technical standards. It happens that the consumption of energy resources at the enterprise is above the normal and its workers are given a prize for saving.

By the way, the transition to a standardized base for stimulation is a necessary, but insufficient condition for instilling true order. Experts will surely be found who will try to derive the standard more freely. Here we approach the next question that directly concerns the economic mechanism: why are only standards, limits and other plans "from above" important for the enterprise? Why is it not concerned simply with conserving resources?

The enterprise knows its true potentialities better than any higher instance. The hundreds of specialists that the modern large plant has, possess more knowledge than the single curator of the higher department. If the enterprise tries to hide reserves of conservation, it most often succeeds. The problem, consequently, is to have the administrative control on the part of the leadership, and the economic stimuli of the collective itself directed to the same purpose, and not opposite ones.

Price must play the most important role here. I mentioned that a ton of oil on the world market costs no less than $200 today. For our country that exports oil, every conserved ton is a quite real currency profit. For the enterprise that consumes oil, the wholesale price has remained unchanged for many years. During these years the world prices for oil have risen ten-fold, and the capital expenditures of our oil industry for the development of new fields have increased. The enteprise that uses the most important measuring tool of economics in this way is like a ship that goes to sea with a faulty compass: it always turns up in the wrong place.

Besides an economically substantiated price, it is important to have a real link between the cost of the consumed resources, the realized product, and the enterprise funds. The collective is obliged to orient itself not on the sum of returns "sent from above," but on the returns themselves. It should plan fewer expenditures for itself, and greater results. Pay attention to the strength with which the draft of the Main Directions stresses the role of counter plans. For this purpose, in discussing the profitability of the enterprise it is necessary to start from an economically substantiated standard.

Finally, the next link in the economic mechanism should be kept in good working order. This is the link between saving and personal income. Then the fine for overconsumption of energy and other resources will cease to be a question of the favor of the authorities that issue the limits. On the contrary, the person who permitted the overconsumption will unavoidably fine himself and with his own hands will take money from his own pocket.

It is understandable that the reconstruction of the economic mechanism planned in the draft of the Main Directions is not a simple matter. It will inevitably generate inconveniences for those who are accustomed to consuming valuables entrusted to them without consideration. Perhaps, there is no reason to count them, for the wealth of our earth is great, and one can still increase the extraction of primary resources.

Let us turn to figures again. If one counts from the first year of existence of the domestic oil industry (our oil extraction has been counted since 1860), then in the first 80 years, about 600 million tons of fuel were extracted. Now we extract roughly that much each year. Today coal is no longer our first source of energy, oil and gas have surged ahead. However, in extraction of coal, as of oil, our country occupies the first place in the world. If one counts from the year of formation of the USSR, then it turns out that almost 15 years were required to extract as much coal as we now extract each year. Gas extraction now significantly surpasses its extraction in the entire world in 1955.

All of these are indicators of the enormous advances of our industry that provide the country with invulnerability in any fluctuations in the foreign trade competition. But these are also indicators of the consumption of nonrenewable natural resources. The expenditures for their extraction are rising rapidly as we switch to more distant or less efficient fields. We have something to guard, both the wealth of nature and our own labor.

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ENERGY CONSERVATION

BRIEFS

RECYCLED STEAM FOR HEAT--Minsk--The use of heat from the municipal TETs in the shops of the Minsk gear factory has stopped. The enterprise has started to use production waste steam for heating. This is one of the many developments of the plant's efficiency experts. Thanks to them, the collective has significantly curtailed the consumption of heat and electricity. Since the beginning of the five-year plan enough energy has been conserved to operate the plant for a quarter. The struggle for a prudent attitude about energy resources is encouraged by the conditions of socialist competition. Every case of overconsumption is made public. The section or shop that permitted it is deprived of the right to a prize place. Preparing for a worthy meeting of the imminent party congress, the collective decided to conserve a million kilowatt-hours of electricity in addition to the previously adopted commitments. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Dec 80 p 2] 9035

FUEL CONSERVATION DECREE--The USSR Council of Ministers has adopted a decree on measures to intensify conservation of fuel and energy resources in 1981. The USSR Council of Ministers has acknowledged that the most important state task is to implement strictest conservation in consumption of fuel, electricity and heat, in accordance with the decisions of the November (1979) and October (1980) Plenums of the CPSU Central Committee and the speeches of the CPSU Central Committee General Secretary, Chairman of the USSR Supreme Soviet Presidium L. I. Brezhnev at these Plenums. It has been suggested that the ministries and departments of the USSR, the councils of ministers of the union and autonomous republics, ispolkoms of the kray and oblast soviets of people's deputies, and leaders of the enterprises and organizations: bring the consumption standards for fuel, electricity and heat that are in force at the enterprises and organizations onto a monthly schedule in accordance with the standards and assignments for their average decrease stipulated in the state plan; expand the use of production processes which require the lowest expenditures of fuel and energy resources per unit of product, and establish strict control for adherence to optimal production regimes; conduct work to reduce the losses of all types of energy and fuel, and in particular, to reduce the losses of energy in electric circuits, improve the loading and curtail the idling of motors and transformers, eliminate heat leakages and improve the thermal insulation of industrial furnaces and other energy-consuming units, as well as pipelines in which steam and hot water are carried; guarantee full discharge of petroleum products from the railroad tanks, take measures to eliminate losses of light petroleum products and fuels and lubricants during transporting, storage and pumping, as well as to curtail their consumption by the maximum reduction in empty trips of automobiles and other transportation vehicles. Assignments have been set for 1981 to conserve fuel, electricity and heat in industry, construction, transportation, residential-communal services and agriculture, as well as for the use of secondary heat resources. It has been suggested that the USSR State Committee for Inventions and Discoveries, and the USSR ministries and departments examine the efficiency experts' unrealized suggestions and inventions aimed at efficient use of fuel, electricity and heat, and take measures towards accelerating their introduction into the national economy. In order to establish effective control over the efficient use and conservation of fuel and energy resources, the ministries and departments of the USSR and the councils of ministers of the union republics have been entrusted with strengthening the corresponding subdivisions in the central apparatus of the ministries and departments, while the leaders of the associations, enterprises and organizations have been commissioned to create permanent working groups with the participation of the people's inspectors and members of the soviets of the scientific and technical societies. The decree stipulates measures to intensify the stimulation of efficient consumption of fuel and energy resources. Workers are being rewarded for overfulfillment of assignments for the use of secondary fuel and energy resources. Up to 50 percent of the cost of conserved energy resources is directed towards this purpose. [Text] [Minsk SEL'SKAYA GAZETA in Russian 6 Jan 81 p 3] 9035

CSO: 1822

FUELS

SUPPORT SOUGHT FOR FULLER CRUDE REFINING

Moscow TRUD in Russian 5 Dec 80 p 2

[Article by Ya. Gabidullin, Assistant Chief, "Bashneftekhimzavody" Territorial Association: "Making Sensible Use of Petroleum Reserves"]

[Text] One of the main tasks posed to the oil refiners by the draft "Fundamental Directions" is that of raising the effectiveness of petroleum use, increasing the extent of its refining, and reducing losses of petroleum and petroleum products. The Bashkir ASSR is one of the country's largest petroleum refining centers. However, the work is often made difficult due to planning oversights. Here is a clear example. The enterprises of our association receive crude petroleum from various regions by pipeline transport, which in contrast to railroad transport, for example, operates trouble-free. In the producing areas, the labor collectives work rhythmically, and they fulfill their plans. Thus it would seem that we should receive the crude petroleum rhythmically as well. But no, even the plan itself sometimes forces deliveries to be irregular. The plan for July 1980 required the association to receive 292,600 tons more crude petroleum than its processing facilities could refine. In September, on the other hand, the delivery volume was 242,000 tons below the refining capacity. The enterprises do not have the reservoirs to store such large surpluses of crude petroleum, and by all rights there should be no reason to build them.

The need for integrated, higher refining of petroleum at our enterprises is also a serious problem. Today, 25 percent of the petroleum is refined here with obsolete facilities that produce gasoline, diesel fuel, and kerosene components of low quality. A significant proportion of the light products, paraffins, oils, and other valuable fractions are not extracted from the crude--it all remains in the fuel oil.

It would be economically advantageous to do away with such facilities and processes in the near future, and replace them by improved ones. We can realistically obtain up to 75-80 percent light products from petroleum, as opposed to the present 55-60 percent. The national economy would receive a million tons of additional fuel and raw materials for petrochemistry. At the same time the quantity of fuel oil and other residual products that cannot be transported by pipeline will decrease, and it would be easier to move these products by rail and water.

Higher refining of petroleum would also make it possible to supply raw material to the republic's petrochemical enterprises. The "Salavatnefteorgsintez" Production Association received much styrene, propylene, and other products by rail. Were we to organize processing of local low-octane gasoline into ethylene and other components to be used by petrochemical production operations, we could dramatically reduce the shipment volume. Then the region would be stably supplied with "its own" ethylene, propylene, aromatic hydrocarbons, and high-quality raw materials for rubber production. In this case the demand for tank cars will drop significantly, and the load upon the highly burdened rail section in the vicinity of Ufa will drop.

Another important problem is that of creating fuel oil storage facilities. The demand for fuel oil usually grows considerably in winter, while the demand for light products decreases. But the plants cannot increase their fuel oil production without sacrificing the light fractions. With the awareness and consent of the planning organs, the enterprises produce boiler fuel having a high concentration of light products. This is extremely disadvantageous to the state and the plants. In order to solve this problem, we should find economic support for erecting large fuel oil storage facilities at the places of production and, especially, consumption of boiler fuel; thus we would be able to create fuel oil reserves.

All of these problems affect not only the "Bashneftekhimzavody" Association; they affect other sectors as well. An integrated solution must be found for them in the 11th Five-Year Plan and in long-range plans.

11004
CSO: 1822

OIL PRODUCTION FLOUNDERS DUE TO INADEQUATE SUPPORT

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 Nov 80 p 2

[Article by Yu. Belanov: "The Difficult Oil of Var'yegan"]

[Text] Glavtyumenneftegaz [Main Tyumen' Administration for Oil and Gas Production] began receiving troubling summaries from the "Var'yeganneft'" NGDU [Petroleum and Gas Extraction Administration] back in spring. In April, it extracted 36,000 tons of petroleum less than the monthly plan, and in May the administration was short by 93,000. In July the position stabilized somewhat, and the hope appeared that the oilmen would be able to catch up. But the summaries for the second half of the year were once again plagued by shortfalls: In August the deviation from the plan was 150,000 tons of petroleum, and in September it was 179,000. And so the total indebtedness of Var'yegan oilmen since the beginning of the year reached half a million tons of fuel, which was needed so much by the country.

How could this have happened?

The MI-6 had barely taxied to its landing pad when a crowd of people anxious to get to the village of Raduzhnyy lunged toward the opened hatch of the helicopter. I was swept up like a leaf in the tide and bodily carried to the helicopter, where its commander read off 58 lucky names in a hoarse voice.

Thus it is that every available helicopter is stormed, as in battle, at the Nizhnevartovsk Heliport. And that is no surprise, since there is still no other way to get to Var'yegan.

When I first asked the workers where in their opinion the losses of petroleum begin, one of the oilmen answered quite seriously:

"In the Communal Housing Section."

On their advice I visited the Communal Housing Section of the "Var'yeganneft'" NGDU. Much was revealed to me by the dry personal services statistics.

At this moment 4,000 people are trying to make a home of it in overcrowded, ill-equipped dormitories furnished basically with bunk beds. The bakery and the bath and laundry facility require immediate repair. The school lacks teachers, and it works in three shifts. Mail service is provided from an unheated closet.

The supply of food, especially vegetables, to the workers of the village is also unsatisfactorily organized.

Of course, it is not only due to a shortage of bed sheets and fresh cabbage that the petroleum extraction plans are regularly not met. But the disorganization of personal services causes turnover of the personnel, which has achieved critical proportions in the administration. In 9 months of the present year 452 persons were hired and 533 left their jobs. Turnover is 52 percent among laborers and 60 percent among engineers and technicians. And the people that leave Raduzhnyy are not the "drifters" but the hard workers, who cannot get accustomed to the severe conditions of the northern lands.

In the opinion of the acting chief of "Var'yeganneft'" I. Rynkovskiy, chief engineer A. Petrov, and other of the administration's executives whom I interviewed, it is no accident that the petroleum extraction plan failures began to be regular in April. It was precisely then (more accurately, in March 1980) that the "Var'yeganneft'" NGDU was moved from the city of Nizhnevartovsk to the village of Raduzhnyy.

In and of itself, such a decision--to move the administration's executive staff, its technical services, and its supply bases to the vicinity of the producing deposits--does not create any doubts as to its usefulness, since it is truly difficult to guide and monitor the work of production teams out of Nizhnevartovsk, which is cut off from the oilfields by impassable, marshy taiga.

But the haste and thoughtlessness with which this step was taken by L. Vyazovtsev, general director of the "Nizhnevartovskneftegaz" Production Association and executives of the Tyumenskaya Oblast main administration does elicit amazement. After all, at that time, in spring, it was as certain as two times two equals four that there would not be any roads to Var'yegan in the near future and Raduzhnyy itself, which had just recently achieved the status of a workers village, was entirely unprepared to greet the new inhabitants.

The results of the ill-conceived decision made themselves known immediately. The administration immediately lost 70 percent of its most experienced specialists, who had worked in the North 3 to 10 years. The people did not want to be separated from their families, for which there was no room in the village. Could we blame them for this?

The supply problem became significantly more complex as well. While in former times a concrete supply subdivision in Nizhnevartovsk, outfitted with everything it needed was responsible for delivery of cargo to the oilmen, it is now presumed that Raduzhnyy has its own supply base. It has even been given an impressive title--the production-technical supply and equipment base. But we can hardly take an unfenced, open-air platform on the bank of the Agan, with no moorings or storage buildings, seriously.

"Look at how we are forced to store the equipment and materials," said Ye. Buzik, chief of the freight handling section.

He showed me cement that had transformed into stoney piles; he showed me the rusting and partially scavenged equipment intended for initial processing of the petroleum. The drillers experience an acute and a constant need for pump and compressor piping and turbodrills. Work teams preparing the deposits for production remain idle for hours at a time due to a lack of the necessary equipment, materials, and machinery.

"Before, there was at least some hope in getting support from Nizhnevartovsk," they told me bitterly, "but now we can't get anyone to listen to reason either there or at our base."

It would seem that in such a situation, the association's executives would display maximum organizational effort to somehow smooth out the consequences of their own oversights and mistakes. But instead of providing concrete, effective help to the lagging collective, they have assumed another tack.

In September the "Nizhnevartovskneftegaz" Association set a target of 1,190,000 tons of fuel in a month for the Var'yegan oilmen. The administration computed its own possibilities and concluded that considering the present state of affairs, this was unrealistic. Thus they enacted measures that would result in the extraction of only 1,037,000 tons of petroleum in September. The association vetoed the measures, demanding fulfillment of its directive to the letter.

O.K., the Var'yegan oilmen said. But such a quantity of fuel could be extracted from the subsoil only on the condition that 49 wells were switched to mechanical extraction, for which purpose they had to create an additional 10 underground repair teams. The new version of the measures was included in the association's summary plan and sent to the main administration, with the foreknowledge that the assignment could not be supported by the available manpower and materiel.

And so what happened? In September, out of the 49 wells that were to be switched to mechanized extraction according to the plan, only one was in fact switched. For this reason alone the petroleum extraction shortfall was more than 55,000 tons. Moreover the oilmen failed to meet the plan for placing production and injection wells into operation, which meant a shortfall of another 70,000 tons of fuel.

The position taken by the association's party committee, headed by V. Romanenko, causes amazement. This was obviously an extraordinary situation, but he never did get around to discussing the failure of the state program by Var'yegan oilmen. Nor was anything done about this by the Nizhnevartovsk City Party Committee.

But the communists of Raduzhnyy do have a very great need for help. There are about 40 teams of oilmen, drillers, builders, and geologists working in the village. They are all working on the same important state task, but their party organizations are isolated from one another. Why not capitalize on the experience of, for example, the neighbors in Omsk, who created a council of secretaries with the rights of a party committee in such villages? There is even more reason to do this, because there are many oversights and mistakes and unutilized internal reserves in the work of the Var'yegan oilmen themselves and their numerous support teams.

V. Morev, A. Chkanikov, A. Volkov, and I. Kruglyakov--communists of Petroleum and Gas Extraction Shop No 2--discussed these reserves openly, with business-like concern, at a recent party meeting held at the end of the third quarter.

"After all, it pains us to see this," pumping station operator V. Yalovets told me as he pointed to the huge torch capped by thick black smoke. "More than 300 tons of petroleum are burned off at the Var'yegan oilfields together with by-product gas each day, owing to the absence of adequate purification capacities."

Much petroleum is lost as a result of organizational and technical shortcomings at the pumping stations, petroleum-gas separators, and other "hot spots" of shop No 1, the administration's largest.

"Var'yegan is a bitter lesson to us all, a woeful example of the fact that we cannot support such a high extraction volume from an ill-equipped oilfield. What we have here is a petroleum extraction outpost that has broken its lines of communication with its rear services," admitted L. Vyazovtsev, director of the "Nizhnevartovskneftegaz" Production Association.

He was right about the lesson. It is a pity, however, that no one has yet made the proper conclusions from it either in Nizhnevartovsk itself, or at Tyumenskaya Oblast's main petroleum administration or, finally, in the Ministry of Petroleum Industry.

11004
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AL'MET'YEVSK PLANT INSULATES PIPE FOR OIL PIPELINES, OTHER PURPOSES

Moscow IZVESTIYA in Russian 26 Dec 80 p 1

[Article by B. L'vov (Al'met'yevsk, Tatar ASSR): "The Pipe Will Be Durable"]

> [Text] The first insulated pipe of small and medium diameters has been received at the automated installations of the Al'met'yevsk Pipe Enterprise of Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises]. They are intended for land-reclamation and water-resource uses, and also for use at oilfield facilities in Tataria, Bashkiria, West Siberia and other regions. The collective has carried out ahead of schedule one of the most important items of its precongress socialist commitments.

....The senior foreman of the first line for the mechanized insulation of spiral-welded pipe,Engineer F. Mirikhanov, is on duty at the control panel.

"The process is working strictly on schedule," reports operators' brigade leader V. Zaborskiy "The quality of the insulation is excellent. Laboratory analyses confirm this."

One pipe after another, dressed in a strong polymer armor, slides into the accumulator.

The collective of the Al'met'yev enterprise is working with special enthusiasm these days. Operators, foremen and brigade leaders have resolved to bring the first production line up to design capacity ahead of time. Several such lines will be introduced into operation during the 11th Five-Year Plan.

"The new production facility's importance is very great," says Deputy Minister of Construction of Enterprises of the Petroleum and Gas Industry M. Khusnutdinov. "The insulation of pipe under factory conditions will reduce to a small fraction the labor intensiveness of such operations directly on the pipeline route and will sharply increase the pace and quality of that work. Of course, the large number of vehicles and mechanisms that are needed to insulate and lay pipe by the traditional method will be released."

The factory method of insulating pipe with polymer materials was developed and introduced by the joint efforts of scientists and production workers of Minneftegazstroy, Minchermet [Ministry of Ferrous Metallurgy] and a number of other agencies.

The CPSU Central Committee's draft for the 26th party congress, "The Main Directions for Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990," states in particular: "Raise the quality of construction of facilities for pipeline transport and provide for their reliable operation." The polymer insulation of the pipe is an important step in the solution of this task.

11409
CSO: 1822

PROGRESS IN INTRODUCING TERTIARY OIL EXTRACTION METHODS ASSESSED

Baku VYSHKA in Russian 27 Dec 80 p 2

[Article: "The 'Green Light' for Tertiary Methods"]

> [Text] At the end of 1976 VYSHKA published an article entitled "At the Threshhold of Tertiary Methods" containing the materials collected by a team of workers and correspondents who checked up on introduction of modern, tertiary methods for raising the return from oil beds in Azerbaijan oilfields, and revealed the shortcomings in this important work. The VYSHKA inspection raised a debate on this problem in the newspaper. Producers, scientists, and representatives of research and planning organizations took part in it. Many valuable proposals were suggested, aimed at raising the effectiveness of tertiary methods for intensifying extraction, and ways for achieving high end results at the least cost were proposed.
>
> Now that the 10th Five-Year Plan is drawing to a close, the newspaper decided to check the status of the efforts to introduce these methods, and the progress in fulfilling the planned measures.

Pluses and Minuses

Hundreds of thousands of tons of "black gold" were extracted from the subsoil by the republic's oilmen in the 10th Five-Year Plan, using modern methods for raising the oil output of the beds. Note that the added annual increase in extraction due to just these measures alone exceeded the union average by almost three times in the "Azneft'" Association.

A good output was achieved with physicochemical methods for influencing the beds--injecting water solutions treated with surfactants into them. Application of this method at the oilfields of the Kura floodplain and the Baku archipelago, for example, made it possible to raise extraction by about 140,000 tons of additional oil in the past five-year plan.

Introduction of thermal methods produced hopeful results. Injection of hot steam into the beds is a practice now being applied to old deposits that have been producing for a long period of time--Khorasany, Binagady-Kirmaku, and Puta-Kushkhana. This has made it possible to extract more than 40,000 tons of additional liquid fuel from the subsoil in the past years of the 10th Five-Year Plan. The Khorosany and Koshanaur Balakhany-Sabunchi oilfields of the Ramaninskoye deposit and the northern fold of the islands of Artema and Karachukhur produced a more-substantial increment--more than 100,000 tons--by introducing a method entailing ignition of the oil in its bed.

However, were we to view the problem of introducing tertiary oil extraction methods in its entirety, we would have to note that the republic's oilmen are making far from complete use of all of their possibilities to intensify production. Evidence of this can be found, in particular, in a recently held meeting of party and business officials of the Azerbaijan SSR, who discussed the problems associated with raising the effectiveness of the republic's petroleum and gas industry.

What are the reasons for slow introduction of the methods for intensifying fuel extraction?

At the beginning of 1977 the Presidium of the Azerbaijan SSR Academy of Sciences initiated an integrated program to raise the effectiveness of efforts to increase the oil output of the beds, jointly with the "Azneft'" and "Kaspmorneftegazprom" associations. This program established concrete deadlines for completing the measures, and it specified the oilfields at which they should be introduced on priority. The following institutes were asked to participate in the program: the Institute of Problems of Deep Petroleum-Gas Deposits (IPGNM), the Institute of Petrochemical Processes and Geology of the Azerbaijan SSR Academy of Sciences, the AzNIPIneft' [Azerbaijan Scientific Research and Design Institute of the Petroleum Industry], the "Gipromorneftegaz" [probably State Design Institute for Off-Shore Oil and Gas Extraction] and some other scientific research organizations. What is the progress in this program?

Speaking frankly, it is not as we would want it to be. Take as an example introduction of the promising method of alkaline flooding of the beds. The method was to be tested in 1977-1978 at the Tsentral'nyy Kyurovdag and Kyursangya oilfields, but at the moment neither the scientists nor the producers can say anything definite about the final results of the tests. So-called foaming systems for enlarging the oil output of beds in old oilfields are being developed and introduced too slowly. The deadlines for some other points of the integrated program are not being met either.

Specifically, there is nothing surprising in this. We found that many had already forgotten about the existence of the integrated specific-purpose program.

"An integrated specific-purpose program? Oh, yes, there is something like that here," said Azneft''s chief engineer A. Lyatifov, who showed us the association's plan for introducing new methods. However, this plan was for the next five-year plan.

Nor did the chief engineer of the association's technical section, B. Burgalov, who deals specially with the problems associated with raising the oil output of the beds, know anything about this document either.

A. Bogopol'skiy and D. Dzhamalov, directors of the heat treatment method sectors of the Azerbaijan SSR Scientific Research and Planning Institute of Petroleum Industry, said that they did have a vague recollection of the integrated program's existence, but they could not say anything specific about why they send reports on their work to the Academy of Sciences.

We talked with many scientists in our attempt to find out what they feel the main causes of poor introduction of tertiary extraction methods at Azerbaijan's oilfields to be. One of them blamed the producers, who are highly reluctant to conduct industrial experiments, especially if they do not produce an immediate payoff. Others feel that a special center that would coordinate the efforts of specialists of different types working on extraction intensification and prevent parallelism and lack of coordination in their activities should have long been created under the republic's Academy of Sciences.

There is perhaps a large share of truth in these statements. At the same time we cannot but agree with Azneft''s chief engineer A. Lyatifov when he reproaches the scientists for frequently limiting themselves to just theoretical explorations, and rarely providing effective local assistance to the producers.

Why is Effectiveness So Low?

Let us now consider the causes of the slow rate of introduction of tertiary methods of petroleum extraction and their insufficiently high effectiveness in greater detail.

Take as an example the question as to developing and introducing so-called foaming systems mentioned above. We know that such a system, called a microfoam solution, was introduced on the initiative of Surakhan oilmen and is being used successfully to displace oil out of old beds. The original plans called for experimental injection of the foam system into a bed by the "Karadagneft'" NGDU [Petroleum and Gas Extraction Administration] in parallel with the work of the Surakhan oilmen. Well No 657 in the Lok-Batan field was allocated for this purpose. A. Sarkisov, senior scientist of the Azerbaijan Academy of Sciences Institute of Problems of Deep Petroleum-Gas Deposits, proudly told us that the facility had been made ready, that test injection had been performed, and that things were being held back only due to a lack of compressed air.

But when we visited the field we found that the well fixtures--the reservoir, the mixer, the pump, and so on--had been disconnected from the well. Moreover, plenty of compressed air, of which an especially large amount was not required, could be obtained from a compressor station located not far away.

"Why are the fixtures disconnected?" we asked K. Mamedov, chief of Karadagneft's Scientific Research and Production Shop.

"You see," he explained, "the new equipment introduction plan for the NGDU does not foresee the foam injection system. True, specialists from the institute do sometimes visit us, but things do not go beyond such exchanges of opinions. And before long we will have to pull out the pump for good."

Well No 657 is within the section run by petroleum and gas extraction foreman K. Kadyrov. We asked the foreman if he was aware of the nature of the experiment, and if he had any plans for doing anything at the well.

"I know that they pumped some sort of foam into the well once, but the yield from surrounding wells did not increase."

The indifference to the experiment displayed by higher supervisors infected the foreman and the entire team as well. Naturally it would be difficult to count on success in such a situation.

Another tertiary extraction method--the oil ignition method--is also not being introduced satisfactorily by Karadagneft'. It should have been introduced at the beginning of the five-year plan at Umbaki. In the opinion of many scientists and producers this is the sole means for stabilizing extraction in this area, since Umbaki oil is unusually viscous, and conventional geological engineering measures do not produce an impact.

But at the same time the report shown to us at the AzNIPIneft' stated that the oil ignition process had already been introduced at Umbaki. In fact, however, it had not been introduced here. Absence of compressed air--the excuse given at the beginning of the five-year plan--cannot be said to be an obstacle here.

"We were unable to ignite the bed mainly because the electric heaters provided to us by colleagues of the AzNIPIneft' kept breaking down," said TSNIPR [not further identified] laboratory director D. Pridman.

Thus we would have to lay the blame primarily on the institute specialists. After all, there are a number of ways to cause ignition of a bed, other than electrical, but not one of these methods was tested at the Umbaki deposit.

It should be mentioned that oilmen of the "Leninneft'" NGDU--pioneers in the introduction of oil ignition--recently lost their leading position as well. This year they produced 8,000 tons less oil than foreseen by the socialist pledges as a result of introduction of this method. Of course this could be explained by many objective causes, but at the same time we cannot ignore the fact that the producers have clearly weakened their attention to improving the production processes.

Workers of the "Leninneft'" NGDU deserve serious reproach for the following as well. According to the plan for outfitting the Khorasany site, which was targeted for the oil ignition method, a high-capacity compressor station was delivered here with the purpose of injecting air into the bed. This was an OVG-3 compressor, consisting of 24 modular trailers. Soon after, the automatic panels of many of the trailers were found torn apart, and the instruments they contained were broken or pulled out by their roots. This happened on the territory of the oilfield, which is visited by dozens of people every day, including engineers, technicians, and executives of the NGDU. Nevertheless it is asserted here that no one knew that the equipment had come in, and the suppliers, by displaying an efficiency supposedly atypical of them, thus did the oilmen a disservice.

It should be noted that this is not the sole case of such an attitude toward new technology. A year and a half ago VYSHKA carried an article on dispossessed distributing devices at the construction site of the Balakhanskaya oil well. Their recovery required considerable resources, and it delayed drilling of the well for a long time. But no one learned their lesson. This year the site received ventilation equipment and an elevator for the future underground oil drilling complex. They are being stored out in the open, without security, and it is entirely possible that they will follow the fate of the distributing devices.

"We did not think that the plant would send them to us so soon," explained N. Atayev, chief engineer of the well's construction board, to the inspection team.

Oilmen of Leninskiy Rayon have always displayed a zealous attitude toward new technology; they were the pioneers in the introduction of many technical innovations, and it is not in keeping with their reputation to permit spoilage of expensive equipment.

Tertiary methods are not being introduced with sufficient persistence at a number of oilfields of the All-Union "Kaspmorneftegazprom" Industrial Association. In particular due to a shortage of compressed air, oil ignition has been terminated on Artema Island. Experimental heat processing of the bed with the help of a steam generator using sea water ended in failure. The generator broke down and was scrapped before construction of shallow wells of special design, which had dragged on for several years, could be finished.

We cannot ignore the fact that in many cases the production procedures are violated when a new method of one type or another is introduced. Take as an example the injection of surfactants into beds of the Kyurovdagskoye deposit of the "Shirvanneft'" NGDU: The average concentration of sulfanol in the solution was 1.5-2.5 below normal. A similar situation occurred in Kyursangya. Consequently we need not be surprised that the impact of injecting sulfanol into the bed was negligible.

We Need Dependable Equipment

The participants of the inspection listened to many valid complaints from the oilmen toward the quality of the production equipment intended to support some of the new methods for increasing the oil output of the beds. On visiting the section of "Leninneft'" in which OVG-2 compressors were installed, we found that one of them was out of action. The station chief, P. Nabiyev, set us straight:

"This is not the first time a problem caused by intense vibration has come up. Moreover the equipment is crowded together excessively in the trailers. There are no hoisting mechanisms with which to dismantle the machines when the need arises. And in summer the roof gets so hot that it is impossible to work inside."

"Recently" added NGDU deputy chief engineer S. Mamedov, "we were visited by a representative of the TatNIIneftemash [Tatar Scientific Research Institute of Petroleum Machine Building] (this institute planned the OVG units), with whom we determined the ways to reduce noise and vibration. But this will apparently not solve the problem completely. The designers and machine builders must do some hard work to create convenient, highly productive equipment that would satisfy all labor protection and safety requirements."

There is one more problem about which we were informed by workers of the Baku section of the "Soyuztermneft'" start-up and adjustment administration in Krasnodar, preparing new steam generators for operation on Kirmak Mountain.

"Do you see that boiler and pump installed in the same trailer?" said senior engineer F. Fataliyev. "Because of the intense vibration the lining falls off, and the pipes in the boiler burn through instantaneously. This has already happened in the Checheno-Ingush ASSR and in the Ukraine, where similar devices are operating. We expect the very same thing to happen here. I think that the planners should definitely consider this shortcoming."

The problem of supplying monitoring and measuring instruments to the oilmen remains acute. Many instruments are not at all available, and those that are, are of low quality. All of this means that the oilmen are sometimes forced to work blindly, since they cannot adequately analyze the progress of a particular production process or determine its effectiveness.

The draft report of the CPSU Central Committee to the 26th CPSU Congress orders oilmen of the Azerbaijan SSR to stabilize petroleum extraction in the 11th Five-Year Plan. Successful completion of this order will depend not only on enlarging the explored reserves of petroleum and gas, but also on how broadly and purposefully tertiary methods for enlarging the oil output of the beds are introduced. Therefore scientists and producers must work together, energetically, and a consistent effort must be made to provide the oilmen with everything they need.

The VYSHKA inspection team members included: E. Alisafazade and I. Seliverstov, petroleum and gas extraction operators; T. Bakhshiyev, gas compression station mechanic; V. Shakhbazov, fitter; A. Babayev and S. Bagdiyan--correspondents at large, O. Nechipurenko and V. Gol'tsev--VYSHKA correspondents.

11004
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GYUZDEK RAILROAD YARD INEFFICIENCY HAMPERS PETROLEUM-PRODUCT LOADING

Baku VYSHKA in Russian 3 Jan 81 p 2

[Article by O. Zhbanova, senior engineer of the Car-Filling Department of the Gyuzdek Railroad Yard of the Baku Petroleum Transshipping Base of Azerglavneftesbyt: "Hold to Strict Accountability Those Who Harm the State"]

[Text] The Baku Petroleum Transshipping Base of Azerglavneftesbyt [Main Administration for Marketing and Transporting Crude Oil and Petroleum Product of the Azerbaijan SSR] supplies the republics of Transcaucasia with petroleum product. And some of this product with the Emblem of Quality is also loaded for export. Everyone knows how important is the timely supplying of customers with fuel and support for the uninterrupted operation of aviation, transport, agricultural machinery and factories.

We are proud of the great labor achievements of Azerbaijan's agriculture and glad to realize there is some particle of our labor also in their successes. I am writing all this in order to give an idea of what an important section we work in. The responsibility vested in the petroleum transshipping base's collective also compels me to take pen in hand.

Right now all Soviet people are discussing the CPSU Central Committee's draft of "The Main Directions of Economic and Social Development of the USSR During 1981-1985 and for the Period up to 1990" for the 26th congress. If one thinks it over, then the majestic plans contemplated in this document, which truly is of statewide significance, are intended as a reference point also for the high consciousness of our workers, who have toiled unsparingly to carry out the tasks of the preceding five-year plan.

The country is now in a new stage of its development, and society faces increasingly higher tasks. This means that everyone must feel a still greater responsibility for the work of their collectives and for the fate of the contemplated plans. Each of us should struggle against deficiencies in our work that prevent the achievement of still greater successses.

I work in the filling department of the Gyuzdek Railroad Yard. On coming to work I often observe the same picture: for 5-6 hours loading platforms have been standing idle, waiting for the railroad yard to be "all through" and the on-duty officer will be able to turn tank cars over, to be filled with petroleum product. And when, finally, they do turn them over, then the inspectors and valve operators will have to shut down many tanks cars, since they have been misrouted or have a technical defect. We begin to chase tank cars from one loading platform to another. Time passes and the filling plan is disrupted.

Yet there are "Regulations for Hauling Freight" that state quite clearly which tanks cars should be turned over and in what condition for loading petroleum product. But no one considers these regulations, and violations are repeated daily. The Gyuzdek Railroad Yard plays enormous fines because of failure to turn tank cars over on time for filling. For example, by November the total penalties exceeded 600,000 rubles. And the saddest thing is that it does not worry anyone.

But even this is not all. More than 50 tank cars are right now standing at the yard, loaded with petroleum product. For more than 6 months it has not been possible to dispatch them because of technical defects. Gasoline is leaking from the defective tank cars. How much of it has been lost irretrievably already, no one knows. Probably the railroaders are waiting for the fuel to leak out completely. Imagine the magnitude of the harm--indeed, here is a whole train of tank cars unfit for operation. How they got sent for filling is beyond all understanding. But this train is still taking up space at the railroad yard, and it, of course, prevents operations, reducing the railroad yard's already limited switching capabilities.

It is necessary to look the truth in the eye and recognize that the Gyuzdek Railroad Yard is not suitable for the amount of work it is charged with. It is necessary to put into operation additional tracks, which, incidentally have been built for a long time. The Gyuzdek Railroad Yard management and, primarily, its chief, I. Useynov, is misleading superior authority when he informs it of the rejection of tank cars while at the same time tank cars misrouted for filling are being shunted at the loading platforms.

In the final analysis, we suffer and the customers are put in difficult situations, since the plan for filling is not being met. It is high time that the management of the Azerbaijan Railroad and its Baku Division investigate all the violations that have been occurring at the Gyuzdek Railroad Yard. The "Main Directions" of the party once more have specified that the responsibility of ministries, agencies, and enterprises and their managers be raised for the job entrusted to them, for work results, and for carrying out production and operating plans. I agree wholly and completely with this requirement, and I would like to add to that chapter a line about calling to strict material account those managers whose inefficiency inflicts harm on the state.

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GROZNYY-BAKU OIL-PIPELINE FEASIBILITY STUDY APPROVED

Baku VYSHKA in Russian 7 Jan 81 p 4

[Interview with G. M. Balatskiy, chief specialist of the Survey Section of Yuzhgiproneftеprovod, by G. Pogosov: "A Petroleum Trunk Line"]

> [Text] The USSR State Planning Committee has examined and approved the feasibility study for building the arterial Groznyy-Baku petroleum pipeline. The general designer for this large structure of the 11th Five-Year Plan is Kiev's Yuzhgiproneftеprovod [State Institute for the Design of Petroleum Pipelines in the Southern Economic Region] of the Ministry of Petroleum Industry. At the request of VYSHKA's editorial board, chief specialist G. M. Balatskiy of the institute's Survey Section comments on this news.

"The CPSU Central Committee's draft for the 26th party congress, which has been offered for nationwide discussion, emphasizes the necessity to accelerate the development of pipeline transport, especially for transporting petroleum product, crude oil and gas," states G. M. Balatskiy. "The Groznyy-Baku arterial oil pipeline, which Ukrainian specialists designed, will be up to this task. It is intended to insure a regular and uninterrupted supply of base oil to refineries of Transcaucasia's fraternal republics, primarily the capital of Soviet Azerbaijan.

"The Caucasus's oil arterial will be 621 km long. A portion of it will run parallel to the Caspian Sea shore, its path crossing areas of Checheno-Ingushia and Dagestan, as well as a substantial portion of Soviet Azerbaijan.

"Valuable experience gained in the design, construction and operation of our country's large arterial petroleum-product pipelines has been incorporated in the design of this manmade river of oil. A high level of automation and remote-control equipment, the effective protection of the pipe from corrosion, and the preservation of the environment--all these will insure highly productive rhythmic operation and increased operating reliability of the petroleum pipeline.

"Its route, which starts at Groznyy and goes southward, will be put together from thickened pipe 720 mm in diameter. The builders will equip it with two oil transfer pump stations--the terminal station at Groznyy and an intermediate one in the Derbent area. The river of oil, confined to the steel riverbed, will cross tens of large and small rivers, and hills and valleys. The complicated relief of the route required of the engineers basically new design and technological solutions for the structures, the first working drawings of which have already been sent to the client and the builders.

"On the threshold of the 26th Communist Party Congress, installers and builders will lay in trenches the first kilometers of pipe lengths of the new arterial oil pipeline, the construction of which is called for in record time. Each year millions of tons of base oil of high quality will be transported along it."

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FUELS

THERMAL STIMULATION SHOULD BE USED MORE IN AZERBAIJAN OILFIELDS

Baku BAKINSKIY RABOCHIY in Russian 9 Jan 81 p 1

[Lead editorial: "We Must Take the Road to Thermal Methods!"]

[Text] Each of us, no matter what sphere of social life we occupy, will find in the lines of the new party document a program for his actions during the forthcoming decade compressed into a few words. The CPSU Central Committee's draft for the 26th party congress, "The Main Directions for Economic and Social Development of the USSR for 1981-1985 and for the Period up to 1990," also says much to Azerbaijan's oilfield workers. The industry's workers are to: "Expand the use of new methods for stimulating oil reserves and thereby increase the recovery of oil from the ground."

The oil, which for many years could not be obtained by traditional operating methods, can now be extracted by thermal (heat) methods, thanks to the work of Soviet scientists, especially from deposits that are in late stages of development and are poorly productive. Thermal stimulation makes heavy viscous oil liquid and mobile and forces it to flow toward well faces, increasing withdrawal.

In the Khorasany sector, in the oldest Lenin area, pumping steam into one of the levels of the Kirmaku suite enabled an additional 60,000 tons of oil to be recovered in 1969-1979. The level of withdrawal of deposits that have been under development since 1915 has been raised appreciably. And today the wells continue to operate with increased productivity.

In that same area the in-situ combustion process has been introduced successfully since 1973. Already about 100,000 additional tons of crude have been obtained, or 10-fold what these deposits have yielded since 1932, when they were put into operation.

Thermochemical treatment of the bottom-hole zone of the bed, which was suggested by the Azerbaijan Scientific-Research and Design Institute for the Oil Industry, has been bringing good results: well flows have been increasing 1½-fold to 2-fold on the average, sometimes 3-fold to 4-fold.

The facts speak eloquently in favor of large-scale use of progressive thermal methods for intensifying crude-oil recovery. But they are being introduced on a small scale and at a slow pace.

At the Binagady-Kirmaku field (at the oil and gas recovery administration of Kirovneft'), where a deposit 155 hectares in area had to be covered simultaneously with steam stimulation, only 70 hectares were treated in 8 years, this being done at different times and at separate sections. The steam generators are not by far being used at full capacity. During the first 9 months of 1980 two installations operated about 45 percent of the designed time, producing less than a third of the planned amount of steam. Persistent violations of the operating scheme sharply reduced effectiveness of the process.

New in-situ combustion variants tested at the NGDU [oil and gas recovery administration] of Artemneft'gaz and Ordzhonikidzeneft' (with a reduction in the consumption of oil and compressed air for operating needs) increased recovery by 40-60 percent. However, industrial introduction is being greatly delayed.

Azneft' [State Association of the Azerbaijan Oil Industry] is treating the reservoirs thermochemically in the bottom-hole zone on a very modest scale, and Kaspmorneftegazprom is not using it at all.

This cannot continue. The CPSU Central Committee's draft considers it necessary to raise the responsibility of the ministries and agencies for the most rapid use of the results of completed scientific developments in production.

The 1970's were a period of creating and improving thermal methods, gradual achievement by them of the right of citizenship, and convincing proof of their importance in intensifying the extraction of oil from the republic's ground. Thanks to detailed study of the geological and operating characteristics of all fields and of the physical and chemical properties of the oil, tens of deposits both on land and offshore were found at which it was desirable to execute steam injection and in-situ combustion and to use other thermal methods at many hundreds of wells. These are only a portion of our reserves.

In 1981-1985 an acceleration of scientific and technical progress, a conversion of activity to the intensive path of development, and more rational use of the country's productive potential should be provided for. This applies fully also to Azerbaijan's oil industry.

Azneft' recently approved an integrated program of scientific-research and industrial-test work on the topic, "Increasing Oil Withdrawal from Reservoirs During 1981-1985." Kaspmorneftegazprom needs a similar program that considers its own specifics. The hydraulic-engineering structures of the offshore fields have a limited service life, during which it is necessary to gather a maximum amount of crude. Heat methods can accelerate use of the fields' potential resources. Economic organs should insure execution of the integrated programs with financing and the supplying of materials and equipment.

Until now only scientists and engineers in oilfield worker specialties have been working on thermal methods. There is an urgent requirement that academic and industry institutes and engineering VUZs and the efforts of physicists, chemists, power engineers, and the developers and makers of instruments and machines be enlisted in the solution of the new, increasingly complicated and more extensive tasks.

This precious and irreplaceable gift of nature--oil--must be saved in all possible ways, without wasting it, either in the ground or on the surface. The Communist Party attributes enormous importance to increasing the capacity of the fuel and power complex and to improving its structure. During the 1980's the USSR's fuel and energy balance is to be improved considerably. The "Main Directions" contemplates a reduction in the consumption of oil and petroleum products as boiler and furnace fuel. In all respects it is desirable to use them as raw materials for major chemicals.

The country needs petroleum. The draft of the CPSU Central Committee names the stabilization of its recovery as one of the basic directions for developing the Azerbaijan SSR. This obligates party committees, economic organs, laboring collectives, and each communist and each nonmember of the party to show greater initiative and persistence for a rise in oil recovery and in the achievement of high final results. The conference of oil-industry workers that was convened recently by the Azerbaijan CP Central Committee and the recently concluded 44th Baku City Party Conference devoted earnest attention to the need to speed up the introduction of modern methods for artificial reservoir stimulation, including thermal methods.

In one of his speeches in Baku in the autumn of 1978, Leonid Il'ich Brezhnev said: "Soviet Azerbaijan is the cradle of the country's petroleum-recovery and oil-refining industries....And today Azerbaijan is making a meaningful contribution to the motherland's fuel and power supply. We will hope that this contribution will become still greater through the efforts of the republic's workers."

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OILMEN ADOPT NEW PLEDGES

Baku VYSHKA in Russian 11 Jan 81 p 1

[Article: "More Petroleum for the Motherland!: Socialist Pledges of the Collective of the All-Union 'Kaspmorneftegazprom' Industrial Association"]

[Text] Implementing the decisions of the 25th CPSU Congress and the 29th Congress of the Communist Party of the Azerbaijan SSR together with all Soviet people, the collective of the All-Union "Kaspmorneftegazprom" Industrial Association has achieved new successes in assimilation and development of off-shore petroleum and gas deposits. The five-year gas extraction plan was completed ahead of schedule, on 21 October 1980; in comparison with the Ninth Five-Year Plan, the extraction volume increased by 1.7 times. Ten new oilfields and hydrocarbon deposits were discovered, and as a consequence an additional 45.4 million tons of petroleum and 74 billion cubic meters of gas were extracted.

The association's collective worked successfully in the last year of the 10th Five-Year Plan. The mean daily petroleum extraction volume was increased by 1,400 tons, the plan for gas extraction was surpassed by 775 million cubic meters, and the sales volume was 11.7 million rubles.

A new influx of creativity and labor enthusiasm was elicited in the collective of off-shore oilmen by decisions of the October (1980) CPSU Central Commitee Plenum, and by the premises and conclusions contained in the speech given at the plenum by CPSU Central Committee General Secretary, Chairman of the Presidium of the USSR Supreme Soviet Comrade L. I. Brezhnev. Striving to honorably greet the 26th CPSU Congress and the 30th Congress of the Azerbaijan SSR Communist Party, and inspired by the prospects of the sector's development, as described in the CPSU Central Committee draft report, "Fundamental Directions of Economic and Social Development of the USSR in 1981-1985 and in the Period to 1990", the association's collective adopts the following pledges for 1981:

extract 10,000 tons of petroleum and 200 million cubic meters of gas in excess of the annual plan by improving deposit development, broadly introducing progressive methods for extracting petroleum and gas, and accelerating the commissioning of promising oilfields;

extract an additional 3,000 tons of petroleum and 50 million cubic meters of gas, and sell 300,000 rubles worth of products by the opening of the 26th CPSU Congress. The collectives of three enterprises and 75 shops, sections, and teams, and more than 3,200 of the best producers pledge to complete the plan for 2 months by this date;

extract 1,000 tons of petroleum and 25 million cubic meters of gas, and sell 170,000 rubles worth of products in excess of the plan in honor of the 30th Congress of the Azerbaijan SSR Communist Party;

increase the drilling volume by 13 percent, drill through 1,000 meters of rock in excess of the plan, and achieve significant growth in all drilling work indicators by improving job organization, making effective use of floating drilling rigs, equipment technology, and floating resources, and by broadly disseminating the experience of the best teams;

make broad use of industrial methods in job management, achieve a decrease in the construction time of facilities, reduce their cost and improve their quality, and assimilate 800,000 rubles in excess of the plan for the construction and overhaul of hydraulic engineering structures. Complete construction, ahead of schedule, of an off-shore platform in the Oilfield imeni 28 Aprelya, where the depth of the sea is up to 110 meters;

upgrade the qualifications of 4,050 of the association's workers, implement technical progress measures with an annual impact of 3.6 million rubles, and attain an economic impact totaling 2.6 million rubles from introducing efficiency proposals into production;

save 13 million kw-hours of electric power, 200 tons of ferrous metals, 1,900 tons of motor vehicle gasoline and diesel fuel, 2,000 tons of comparison fuel, and 800 tons of cement;

achieve formation of an active life position and a communist attitude toward labor in the collective's members, and make a purposeful effort to practically implement the CPSU Central Committee decree "On Further Improvement of Ideological and Political Indoctrination", and the recommendations of the All-Union Scientific-Practical Conference on Moral Indoctrination held in Baku;

in accordance with the program of the collective's social development, place 26,000 square meters of housing space and a preventive clinic in the village of Buzovny into operation, and assimilate 7 million rubles for the implementation of measures to improve the cultural and personal conditions of the off-shore oilmen. Continue the efforts to create private farms, and increase the number of enterprises possessing farm plots to 14 units.

The laborers, engineers, technicians, and white collar workers of the "Kaspmorneftegazprom" Association vow to the Central Committee of the Azerbaijan SSR Communist Party that they will meet the 26th CPSU Congress and the 30th Congress of the Azerbaijan SSR Communist Party with high production indicators, mark 1981 with shock labor, and make an honorable contribution to fulfilling the tasks posed by the party and government to the republic's oilmen.

The socialist pledges were discussed and adopted at meetings of the enterprise and organization collectives of the All-Union "Kaspmorneftegazprom" Industrial Association.

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